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Responses to Comments Received During the December 1998 - February 1999 Comment Period on the Toxic Air Contaminant List Update Report

ABT Associates
Kathleen Cunningham, January 4, 1999

1. Comment: Pleased to see gasoline vapors and methyl tertiary butyl ether (MTBE) included in this document - health information and risk values are needed for these compounds. For MTBE, there is detailed and extensive animal testing data available from tests carried out prior to 1991 that may be useful.

Response: We acknowledge your comment.

Antimony Oxide Industry Association
William Rawson, January 25, 1999

1. Comment: Air releases of antimony compounds in California are minimal. In addition, ambient concentrations of antimony compounds in California are negligible. The Antimony Oxide Industry Association believes that these facts support Air Resources Board's (ARB) proposed decision to remove antimony compounds from the list of substances nominated for the development of health values.

Response: Antimony compounds were moved out of the nomination category because of the amount of emissions and the number of facilities reporting uses of antimony compounds in California are low. The Office of Environmental Health Hazard Assessment (OEHHA) is currently working on a draft non-cancer chronic Reference Exposure Level for antimony trioxide.

Basic Acrylic Monomer Manufacturers, Inc.
Elizabeth Hunt, February 12, 1999

1. Comment: There is no basis for nominating ethyl acrylate for the development of a cancer potency value. Scientific data provides compelling evidence that ethyl acrylate is not a carcinogenic hazard to humans. ARB should remove ethyl acrylate from the list of substances for which health values should be developed.

Response: Ethyl acrylate is a federal hazardous air pollutant (HAP) that was identified as a TAC in 1993. During our prioritization, ethyl acrylate was determined to be a high priority substance because there are potential health effects associated with the substances and there are no updated health values available for use in risk assessment. However, due to limited resources and low emissions, ethyl acrylate was removed from the nomination category and placed in Category IVa

(Substances identified as Toxic Air Contaminants, known to be emitted in California, and are to be evaluated for entry into Category III). The information provided regarding ethyl acrylate from the National Toxicology Program will be reviewed by OEHHA during the next cycle of reviews of compounds for updating this list.

2. Comment: ARB already has a non-cancer Reference Exposure Level (REL) for ethyl acrylate. Therefore, there is no need or purpose for nominating ethyl acrylate for development of health values.

Response: The California Air Pollution Control Officers Association *Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993* listed a chronic noncancer REL for ethyl acrylate. OEHHA is currently revising the guidelines for the "Hot Spots" Program, but the technical support document for the chronic noncancer health values does not include a number for ethyl acrylate. As noted above, the information from the National Toxicology Program and from other agencies, will be reviewed prior to deciding whether or not there is a need for OEHHA to update the chronic noncancer REL.

Bay Area Air Quality Management District
Brian Bateman, January 22, 1999

1. Comment: In view of the fact that MTBE is a declared TAC and has recently undergone an extensive review at UC Riverside, we question whether a full TAC-type risk assessment for this compound is necessary. The considerable OEHHA and ARB resources needed for such an endeavor might be better apportioned elsewhere.

Response: On March 25, 1999, Governor Gray Davis signed Executive Order D-5-99 finding that "on balance, there is a significant risk to the environment from using MTBE in gasoline in California." The Governor specifically directed that OEHHA prepare an analysis of the health risks of ethanol in gasoline and its by-products by the end of this year. The State Water Resources Control Board, in consultation with the Department of Health Services, is also to develop a clear set of guidelines for the investigation and clean up of MTBE in groundwater.

As part of this effort, a full set of health values for MTBE from exposure to the air pathway is needed to assess viable groundwater clean up technology that may have air emissions. Local air pollution control districts require permits and risk assessments for such activities. In addition, the health values would allow a comparison of the relative risks between MTBE and ethanol.

On April 26, 1999, the ARB requested OEHHA to develop health values for the air exposure pathway for MTBE. OEHHA's assessment incorporates carcinogenicity information already contained in the technical support document compiled for the "Public Health Goal for MTBE in Drinking Water" (March 1999) and the recent report on MTBE completed by the University of California. The OEHHA has completed its health assessment and the

Scientific Review Panel approved it at its November 1999 meeting.

2. Comment: Any evaluation and risk assessment of crystalline silica should pertain only to respirable crystalline silica.

Response: We agree that an analysis of crystalline silica should pertain only to respirable crystalline silica.

3. Comment: The addition of Potency Equivalency Factors for new polycyclic aromatic hydrocarbons to the benzo[a]pyrene risk assessment and/or development of a risk assessment for crystalline silica should be accompanied by the development of appropriate emission factors and the necessary detection and source test methodology for these materials. It would be unreasonable to expect application of new cancer potency factors to entities that cannot be properly quantified.

Response: We agree. The ARB considers exposures to potential TACs in the AB 1807 air toxics program. When developing a risk assessment or potential control measure under this program, the ARB specifically evaluates emissions of and their subsequent exposures to, the air toxic being evaluated. This assessment includes emission factor and exposure method development if needed. In the case of crystalline silica, we plan on doing this work during the risk management phase of the AB 1807 program.

Chemical Manufacturers Association/Cumene Panel
Courtney M. Price, February 19, 1999

1. Comment: The Cumene Panel supports the inclusion of cumene in Category IVa (Substances identified as Toxic Air Contaminants, known to be emitted in California,
and to be evaluated for entry into Category III) of the Toxic Air Contaminant List since the available information demonstrates that emissions of cumene in California may not reasonably be anticipated to cause any threat to human health or the environment.

Response: We acknowledge your comments.

Chemical Manufacturers Association/Cyclohexane Panel
Courtney M. Price, February 22, 1999

1. Comment: The Cyclohexane Panel urges ARB to make a determination that cyclohexane does not meet the criteria for listing as a TAC, and to remove cyclohexane from its list of substances under evaluation for inclusion into the Program. The Cyclohexane Panel believes that cyclohexane's low toxicity and limited exposure potential do not warrant the expenditure of ARB's resources for the purpose of developing health values. The available studies indicate that cyclohexane has only minimal toxic effects, if any, even at high doses. Cyclohexane's listing on

the federal Emergency Planning and Community Right-to-Know Act's (EPCRA) Toxic Release Inventory (TRI) is based solely on its status as a volatile organic compound, not on any direct toxicity concerns.

Response: Cyclohexane is not a HAP, but is listed as a candidate for entry into the identification process. Cyclohexane is reported to be emitted in California under the ARB's "Hot Spots" Program and the EPCRA Toxic Release Inventory. Since there are potential health effects associated with the substance and there are no health values available for use in risk assessment, cyclohexane will remain in Category IVb (Substances not identified as Toxic Air Contaminants, known to be emitted in California, and are to be evaluated for entry into Category III), the candidate pool.

Chemical Manufacturers Association/Ketones Panel
Courtney M. Price, March 7, 1999

1. Comment: Methyl ethyl ketone should not be listed as a "substance of concern" for the Mojave Desert Air Quality Management District in the report.

Response: Methyl ethyl ketone is reported to be emitted in California under the ARB's "Hot Spots" Program and the EPCRA Toxic Release Inventory. OEHHA is currently working on a draft noncancer chronic REL for methyl ethyl ketone and has a noncancer acute REL reviewed by the Scientific Review Panel. Since there are noncancer health effects associated with the substance and a potential for public exposure, methyl ethyl ketone was listed as a high priority substance for their district.

2. Comment: Methyl isobutyl ketone should be a low priority for the development of health values because 1) recent U.S. EPA evaluations confirm methyl isobutyl ketone's relatively low toxicity, and 2) U.S. EPA has recently added methyl isobutyl ketone to its list of compounds for which updated database entries will be prepared for the Integrated Risk Information System (IRIS).

Response: Methyl isobutyl ketone is a HAP with emissions reported under the ARB's "Hot Spots" Program and the EPCRA Toxic Release Inventory. During our prioritization, methyl isobutyl ketone was determined to have a low priority. OEHHA is currently not developing health values for methyl isobutyl ketone as part of the "Hot Spots" Program. Therefore, since there are potential health effects associated with the substances and there are no health values available for use in risk assessment, methyl isobutyl ketone was placed in Category IVa (Substances identified as Toxic Air Contaminants, known to be emitted in California, and are to be evaluated for entry into Category III).

3. Comment: sec-Butyl alcohol should be a low priority for either development of health values or evaluation for possible listing as a TAC.

Response: sec-Butyl alcohol is a non-HAP with emissions reported under the ARB's "Hot Spots" Program and the EPCRA Toxic Release Inventory. During prioritization, sec-butyl alcohol was determined to have a low priority. OEHHA is currently not developing health values for sec-butyl alcohol as part of the "Hot Spots" Program. Therefore, since there are potential health effects associated with the substances and there are no health values available for use in risk assessment, sec-butyl alcohol was placed in Category IVb (Substances not identified as Toxic Air Contaminants, known to be emitted in California, and are to be evaluated for entry into Category III).

Chemical Manufacturers Association/Olefins Panel
Courtney M. Price, February 19, 1999

1. Comment: The Olefins Panel believes that ethylene should not be added to Category IIb (Substances not identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values under development by the OEHHA for review by the Scientific Review Panel) because the available evidence indicates that ethylene is essentially non-toxic to humans and poses no threat to human health or the environment at the levels that can reasonably be expected to exist in the ambient air. Ethylene should not be added to the candidate list of TACs because emissions from industrial sources in California are extremely low.

Response: Ethylene is a non-HAP with emissions reported under the ARB's "Hot Spots" Program and the EPCRA Toxic Release Inventory. OEHHA is currently developing a draft noncancer chronic Reference Exposure Level for ethylene as part of the "Hot Spots" Program, therefore, we placed ethylene in Category IIb. We are not recommending that ethylene be entered into the TAC identification process at this time.

2. Comment: The Olefins Panel is concerned that ARB may have proposed to include ethylene on the potential Toxic Air Contaminant List because OEHHA has proposed a REL of 0.1 ppm. The Olefins Panel has objected strongly to OEHHA's proposed REL for ethylene because OEHHA used an ethylene oxide study as the basis for the proposed ethylene REL.

Response: This report is proposing to add ethylene to the candidate TAC list because of OEHHA's health effects evaluation and its listing on the air toxics "Hot Spots" list. As noted above, we are not proposing to enter ethylene into the TAC identification process at this time.

Chemical Manufacturers Association/Phthalate Esters Panel
Courtney M. Price, February 22, 1999

1. Comment: Air emissions in California of butyl benzyl phthalate and bis(2-ethylhexyl) adipate are not likely to pose toxicity concerns, and therefore should not be included on the list of chemicals to be evaluated for listing as TACs.

Response: Butyl benzyl phthalate and bis(2-ethylhexyl) adipate are non-HAPs with emissions

reported under the ARB's "Hot Spots" Program. During prioritization, butyl benzyl phthalate and bis(2-ethylhexyl) adipate were determined to have a low priority. OEHHA is currently not developing health values for these substances as part of the "Hot Spots" Program. Therefore, since there are potential health effects associated with the substances and there are no health values available for use in risk assessment, butyl benzyl phthalate and bis(2-ethylhexyl) adipate will remain in Category IVb. We are not proposing to enter these two substances into the TAC identification process at this time.

2. Comment: Dimethyl phthalate and dibutylphthalate but pose low toxicity concerns and therefore, should have a low priority for elevation to Category III.

Response: Dimethyl phthalate and dibutylphthalate are HAPs with emissions reported under the ARB's "Hot Spots" Program and the EPCRA Toxic Release Inventory. During our prioritization, these substances were determined to have a low priority for entry into Category III. OEHHA is currently not developing health values for dimethyl phthalate or dubutylphthalate as part of the "Hot Spots" Program. Therefore, since there are potential health effects associated with these substances and there are no health values available for use in risk assessment, they will remain in Category IVa (Substances identified as Toxic Air Contaminants, known to be emitted in California, and are to be evaluated for entry into Category III).

Chemical Manufacturers Association/Propylene Glycol Ethers Panel
Courtney M. Price, February 19, 1999

1. Comment: Propylene glycol monomethyl ether (PGME, CAS #: 107-98-2) is mistakenly included in Category IIa (Substances identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values reviewed by the Scientific Review Panel or under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel). PGME is not a TAC, and therefore, should be in Category IIb (Substances not identified as Toxic Air Contaminants, known to be emitted in California, with one or more health values under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel). Neither PGME, nor any other propylene glycol ethers are included in the HAP glycol ether definition. It includes only ethylene glycol ethers.

Response: We have made this correction to the Toxic Air Contaminant List.

Construction Materials Association of California
Linda Falasco, February 22, 1999

1. Comment: The Construction Materials Association of California has concerns about proceeding with the identification process and risk assessment of crystalline silica for the following reasons: 1) The health affects information on crystalline silica is not definitive, 2) the U.S. EPA does not list crystalline silica as a HAP, and recently concluded that controls for

particulate matter of 10 microns or less (PM_{10}) are adequate for control of ambient crystalline silica exposure, 3) the International Agency for Research on Cancer (IARC) only considers crystalline silica a carcinogen for workplace exposure, not ambient exposure, and 4) fugitive sources, not stationary sources, are the major source of PM_{10}.

Response: Crystalline silica is not on the federal HAP list, and has not been identified as a TAC under the AB 1807 program. There is significant potential for exposure to crystalline silica from stationary sources in California. Approximately 1,700 tons per year are reported to be emitted from 426 stationary source facilities in California. In addition, crystalline silica may have both cancer and noncancer endpoints. The IARC has found that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1). The State of California under Proposition 65 lists crystalline silica (airborne particles of respirable size) as a chemical known to the State to cause cancer. Crystalline silica was listed by one APCD as a substance that is of concern in their district.

Last summer, we asked OEHHA to begin development of a noncancer chronic Reference Exposure Level (REL) under the Air Toxics "Hot Spots" Program. (This chronic REL will not be included in OEHHA's current draft technical support document for non-cancer chronic RELs, but will be included sometime in the future.) The ARB is also initiating a research study to conduct near source monitoring of crystalline silica sources, with the final report due in the year 2000. In late 1999, we plan to enter crystalline silica into the TAC identification process and begin a comprehensive AB 1807 TAC risk assessment for the development of a cancer potency value.

Methyl Chloride Industry Association
William Rawson, January 25, 1999

1. Comment: The Methyl Chloride Industry Association supports ARB's decision to move methyl chloride from the pool of candidate substances nominated for the development of health values because emissions are low and few facilities report use of this compound in California.

Response: We acknowledge your comments.

Nickel Producers Environmental Research Association
Nickel Development Institute
Inco United States, Inc.
Neil J. King, January 15, 1999

1. Comment: A cancer potency value has not been approved by the SRP for metallic nickel**.**

Response: On August 8, 1991, the ARB identified "Nickel (metallic nickel and inorganic nickel compounds)" as a toxic air contaminant (Title 17, California Code of Regulations, section 93000).

2. Comment: The cancer potency value approved for nickel compounds should be applied only to nickel subsulfide and insoluble nickel compounds, with water-soluble forms of nickel being specifically excluded.

Response: In 1991, the ARB identified nickel (metallic nickel and inorganic nickel compounds) as a TAC in California. The basis for this determination was made on the health effects data available which showed that nickel causes cancer in humans. Much of this determination was based on the U.S. EPA's conclusions that nickel refinery dust and nickel subsulfide are human carcinogens as well as the International Agency for Research on Cancer's classification of nickel compounds as carcinogenic in humans. Based on this evidence, no such exclusion of water-soluble forms of nickel was made.

In addition, the International Committee on Nickel Carcinogenesis in Man indicated that the epidemiological evidence points to insoluble and soluble nickel compounds as contributing to the cancers seen in occupationally exposed persons. From this and other data, the OEHHA believes that based on available genotoxicity and carcinogenicity data and physiochemical properties of nickel compounds, all nickel compounds should be considered when evaluating the risk by inhalation.

North American Insulation Manufacturers Association
Angus Crane, January 19, 1999

1. Comment: The text in the draft staff report is unclear regarding the removal of fine mineral fibers from the nomination category.

Response: We apologize that the section explaining the history of selecting and analyzing the high priority substances was unclear and caused concern. The section has been revised to indicate that only four substances remain nominated for evaluation within the next two years.

Santa Barbara Air Pollution Control District
Peter Cantle, January 11, 1999

1. Comment: Would like their district's name added to Table 1 indicating that crystalline silica is a high priority for them.

Response: Santa Barbara Air Pollution Control District has been added to Table 1 of the staff report.

2. Comment: The fact sheet on crystalline silica in the report *Toxic Air Contaminant Identification List - Summaries* should list diatomaceous earth mining operations as sources of the material.

Response: Currently we are not working on an update to this report. However, your request has been documented and will be included in the next version.

Solutia, Inc.
Paul Shelton, February 17, 1999

1. Comment: The available data on butyl benzyl phthalate and bis(2-ethylhexyl) adipate (diethylhexyl adipate) indicate that they are toxic at only very high doses and that environmental releases are not likely to cause acute or chronic environmental effects. Therefore, Solutia believes that ARB should make an express determination that these chemicals do not meet the criteria for listing as a TAC and should be removed from the list of substances under evaluation for inclusion in the TAC program

Response: Butyl benzyl phthalate and bis(2-ethylhexyl) adipate are non-HAPs with emissions reported under the Air Toxics "Hot Spots" Program. During prioritization, butyl benzyl phthalate and bis(2-ethylhexyl) adipate were determined to have a low priority. OEHHA is currently not developing health values for these substances as part of the "Hot Spots" Program. Therefore, since there are potential health effects associated with the substances and there are no health values available for use in risk assessment, butyl benzyl phthalate and bis(2-ethylhexyl) adipate will remain on the candidate list of TACs in Category IVb. We are not proposing to enter these substances into the TAC identification process at this time.

Styrene Information and Research Center
Betsy Shirley, February 22, 1999

1. Comment: ARB should postpone the review of styrene by OEHHA until after the U.S. EPA has completed its review of styrene under the Integrated Risk Information System (IRIS) in early 2000.

Response: We understand new health studies on styrene were completed in 1998. We plan to ask OEHHA to review these studies and all other related literature in late 1999 to determine if it would be possible to develop a cancer potency value. If it is determined that we would move forward with development of health values for styrene, the effort would be coordinated with the efforts of U.S. EPA and other authoritative bodies.

2. Comment: The cancer potency value for styrene in the California Air Pollution Control Officer's Association (CAPCOA) Air Toxics "Hot Spots" Guidelines is invalid for use in the prioritization scheme.

Response: The preliminary CAPCOA cancer potency value was not used in the prioritization process. Our calculations reflect that no cancer potency value is available for use.

3. Comment: The Styrene Information and Research Center believes that the ARB should revise

its cancer ranking scheme based on the overlap between IARC's Group 2B classification criteria and U.S. EPA's Group B2 classification.

Response: We are aware of this overlap in the current prioritization scheme when comparing U.S. EPA and IARC classification schemes. The overlap was examined, but did not change the ranking of the top 30 substances.

3. Comment: With the declining trend in emissions of styrene in the ambient air, styrene falls below the level of concern required for assigning a chemical the highest priority ranking for ARB review.

Response: Styrene is a federal HAP that was identified as a TAC in 1993. It has high emissions reported under both the Air Toxics "Hot Spots" Program and the EPCRA Toxic Release Inventory. During our prioritization, styrene was determined to be a high priority substance and three districts listed it as a substance of concern. OEHHA is currently working on a draft noncancer chronic REL for styrene and has an SRP-reviewed noncancer acute REL for the Air Toxics "Hot Spots" Program. However, a comprehensive risk assessment has not been completed for an inhalation cancer potency value. The IARC classifies styrene in Group 2B: possible human carcinogen. Styrene has also been detected but not quantified in motor vehicle exhaust by the ARB. We understand new health studies on styrene were completed in 1998. We have taken previous comments into account and plan to ask OEHHA to initiate review of these studies and all other related literature in 1999 to determine if it would be possible to develop a cancer potency value for styrene.

Western States Petroleum Association
Jeff Sickenger, February 22, 1999

1. Comment: ARB should reconsider its proposal to rank MTBE as a high priority candidate for TAC review based on recent decisions by IARC, NTP, OEHHA's Prop. 65 Science Advisory Board, and the University of California. ARB should wait until the Governor makes his decision regarding the future use of MTBE.

Response: On March 25, 1999, Governor Gray Davis signed Executive Order D-5-99 finding that "on balance, there is a significant risk to the environment from using MTBE in gasoline in California." The Governor specifically directed that OEHHA prepare an analysis of the health risks of ethanol in gasoline and its by-products by the end of this year. The State Water Resources Control Board, in consultation with the Department of Health Services, is also to develop a clear set of guidelines for the investigation and clean up of MTBE in groundwater.

As part of this effort, a full set of health values for MTBE from exposure to the air pathway is needed to assess viable groundwater clean up technology that may have air emissions. Local air pollution control districts require permits and risk assessments for such activities. In addition, the health values would allow a comparison of the relative risks between MTBE and

ethanol.

On April 26, 1999, the ARB requested OEHHA to develop health values for the air exposure pathway for MTBE. OEHHA's assessment incorporates carcinogenicity information already contained in the technical support document compiled for the "Public Health Goal for MTBE in Drinking Water" (March 1999) and the recent report on MTBE completed by the University of California. The OEHHA has completed its review and has submitted their assessment to the Scientific Review Panel (SRP). The SRP reviewed and approved OEHHA's assessment at its November 1999 meeting.

2. Comment: California monitoring data demonstrates that ambient styrene emissions and exposure levels have declined. With the declining trend in emissions of styrene in the ambient air, styrene falls below the level of concern required for a priority chemical. Additional federal standards that will further-reduce styrene emissions are being developed. U.S. EPA's Office of Research & Development has begun a review of styrene's toxicology that will result in a revision of the IRIS database. The state's review should not duplicate the federal effort.

Response: Styrene is a federal HAP that was identified as a TAC in 1993. It has high emissions reported under both he ARB's "Hot Spots" Program and the EPCRA Toxic Release Inventory. During our prioritization, styrene was determined to be a high priority substance and three districts listed it as a substance of concern. OEHHA is currently working on a draft noncancer chronic REL for styrene and has an SRP-reviewed noncancer acute REL for the Air Toxics "Hot Spots" Program. However, a comprehensive risk assessment has not been completed for the inhalation cancer potency value. The IARC classifies styrene in Group 2B: possible human carcinogen. Styrene has also been detected but not quantified in motor vehicle exhaust by the ARB. We understand new health studies on styrene were completed in 1998. We have taken previous comments into account and plan to ask OEHHA to initiate review of these studies and all other related literature in 1999 to determine if it would be possible to develop a cancer potency value for styrene.